TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

Moisture—friend or foe?

J. W. S. Hearle. *Skinner's Silk and Rayon Record 29:* 640-644 (June, 1955).

Aspects of moisture relations in natural and man-made fibers, including what the consumer wants, are reviewed with reference to the literature of the past few years.

NATURAL FIBERS A 1

A preliminary note on a fluorescent-fiber condition in raw cotton.

K. Bollenbacher and P. B. Marsh. *Plant Dis. Reptr. 38, No. 6:* 375-379 (1954). Through *Brit. Cotton Ind. Research Assoc. 35:* 317 (1955).

Samples of raw cotton (from the 1953 crop) in certain areas of the U.S.A. bore yellowish spots which became brightly fluorescent in ultraviolet light. Among the fungi isolated from the fluorescent fibers were *Aspergillus niger* and *Rhizopus nigricans. Aspergillus flavus,* not before noted frequently on raw cotton, was isolated regularly and produced typical fluorescence when inoculated on locks from unopened bolls.

Cotton in Central America.

L. A. Mobley. Memphis 1, Tennessee: National Cotton Council, 1955. 34 p.

This is a study on the trends and prospects of the production, distribution, and consumption of cotton and its products in El Salvador, Guatemala and Nicaragua.

The effect of nuclear radiation on wool fiber.

R. Kirby and H. A. Rutherford (North Carolina State College). *(Letter to the editor.) Textile Research J. 25:* 569-570 (June, 1955).

Stress relaxation of wool fibers in water at strains of 5-20 per cent.

B. J. Rigby. *Australian J. Physics 8:* 176-182 (March, 1955).

A study was made of the stress relaxation at fixed longitudinal strains of wool fibers immersed in water, in the post-yield region of their load-strain curves. The fibers were extended at controlled rates up to predetermined strains, particular attention being paid to the first few minutes of the subsequent stress relaxation. 6 references.

Interaction of acid-treated wool and silk with water vapor and water.

A. F. Cacella and H. J. White, Jr. (Textile Research Institute). *Textile Research J. 25:* 506-516 (June, 1955).

Extensive results are given on the effects of HCl and picric acid on the capacity of wool to absorb water. Both the effect of changing the relative humidity and the effect of changing the acid content of the fibers were studied. Less extensive results were obtained using H_2SO_4, oxalic acid, and Orange II acid and salt on wool, and HCl on silk. Collateral measurements were also made on the swelling of human hair in picric acid solution and on the electrical resistance of wool fibers containing acid at various relative humidities. The absorption of acid decreases the capacity of wool to absorb water at low and moderate relative humidities. The efficiency with which the absorption of water is reduced depends on the identity of the acid. 34 references.

Sprayed asbestos.

Fibres 16: 189-192 (June, 1955).

Spraying of asbestos fibers on to various types of surfaces to combat condensation, provide thermal insulation, and to correct acoustical conditions. Present-day practice is reviewed.

MAN-MADE FIBERS A 2

Technical progress in man-made and synthetic fiber production. Part 1.

H. Rathert. *Fibres 16:* 207-211 (June, 1955).

This article by a member of the board of the German firm Vereinigte Glanzstoff-Fabriken AG reviews the present state of progress of the man-made and fully synthetic fibers, with particular

reference to Germany. Part 1 includes sections on cuprammonium, viscose and acetate rayon production.

Fibers from new polymers.

R. J. W. Reynolds. *J. Textile Inst. 46:* P328-P331 (May, 1955).

Summary of lecture to South Wales Section of the Textile Institute at Pontypool, 14th October, 1954.

Properties, processing and uses of Wolcrylon yarns and yarn blends.

W. Pelz. *Textil- u. Faserstofftech. 5, No. 2:* 96-98 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 325 (1955).

The advantages (excellent light- and weather fastness, dimensional stability, resistance to medium concentrations of acids and to dilute alkali, etc.) and disadvantages (difficult dyeing, brittleness and, consequently, splitting during spinning and weaving, easy soiling, etc.) of Wolcrylon are discussed. Tests carried out with Wolcrylon/wool and Wolcrylon/viscose rayon staple yarn blends have shown a considerable improvement in the quality of dress, suit, coat and underwear materials made from them. Suitable mixing ratios for the respective materials are recommended and samples are shown.

YARN PRODUCTION B

Effects of atmospheric conditions during the preparing and spinning of flax line fiber.

W. Shepherd, G. A. Chase and R. E. Spielrein. *J. Textile Inst. 46:* T362-T368 (May, 1955).

Samples of flax line fiber were prepared and gill spun under various conditions of temperature and relative humidity. Atmospheric conditions had important effects on fiber performance and on other factors during preparing and spinning, but did not affect the properties of the yarns ultimately obtained. Most desirable conditions for preparing and spinning, particularly on bases of fiber performance, highest yarn leas attainable, and personal comfort of the operatives concerned, appeared to be 60-70 per cent relative humidity and 65°-75° F., with certain preferences within these ranges. Temperature effects were less important than humidity effects. These conditions corresponded, for the fiber samples considered, to moisture regains within the range of 10-11.5 per cent.

Degree of blending in worsted grey mixtures.

W. Hodgson (Provincial Institute of Textiles, Canada). *(Letter to the editor.) J. Textile Inst. 46:* T375 (May, 1955).

Adjust for the fiber.

Textile Ind. 119: 70-73 (July, 1955).

How the Willimantic, Conn., plant of the American Thread Company turns out hand knitting and sales yarn using Pacific converters.

How to card and spin rayon carpet staple.

W. W. Bowman (American Viscose Corp.). *Textile Age 19:* 6-8 (July, 1955).

Based on a talk given by the author before the Carolinas Section, American Society for Quality Control.

OPENING, PICKING, FIBER PREPARATION B 1

Tips on making uniform picker laps.

N. H. Pomfret. *Textile World 105:* 106-107, 178-182 (July, 1955).

Modern opening and cleaning with axi-feed and axi-flo.

Whitin Rev. 22: 28-34 (May-June, 1955).

Some general observations about actual mill performance, supplementing previous information in the January-February 1955 issue of *Whitin Review.*

The F-7 feeder and number 15 opener.

Saco-Lowell Bull. 27: 4-11 (June, 1955).

Features are described. Photographs. Diagrams. Table of data.

The cotton waste industry.

Platts Bull. 8, No. 10: 317-324 (1955).

Early processes for opening, cleaning and blending are discussed and cleaning and preparing machines are described. Diagrams.

CARDING AND COMBING B 2

Carding theories and shapes of card wires.

G. Schlese. *Textil-Praxis 10, No. 2:* 146-150 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 324 (1955).

The carding mechanism of flat and roller cards and factors affecting the carding efficiency of the card wires (e.g. carding angle, relative velocity, time) are discussed.

Weighting of the feed cylinder in carding machines.

I. I. Finkelshtein and A. I. Nazarov. *Tekstil. Prom. 15, No. 2:* 14-17 (1955); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 357 (1955).

Experiments have shown that the usual weight on the feed cylinder of carding machines is insufficient, and that an increase of the load increases the gripping force and the density and uniformity of the lap. Optimum results were obtained with a load of 517 kg, but this load can be varied in dependence of the number and irregularity of the laps. By increasing the load it is also possible to increase the speed of the doffer and, consequently, the machine efficiency, while maintaining the quality level of the product.

Checklist for cotton combers.

J. E. Allen. *Textile World 105:* 95 (July, 1955).

Starting from the machine condition, the resulting processing trouble and its remedy can be checked. Starting from the result, the condition that caused the trouble can be checked and the remedy found.

Model 56 comber.

Saco-Lowell Bull. 27: 44-54 (June, 1954).

Features of Saco-Lowell's model 56 comber are covered in great detail. Photographs. Diagrams. Tables of data. Graphs.

The new technique in combing.

Platts Bull. 8, No. 10: 307-313 (1955).

This article is intended to clarify certain points which were raised in an article on the new method of comber lap preparation in *Platts Bull. 8, No. 7:* 195-208 (1954) and to give further results obtained in mills with various cottons and yarn qualities.

DRAWING AND ROVING B 3

Drawing frame blending.

Saco-Lowell Bull. 27: 13-16 (June, 1955).

The results of blending white and dope-dyed viscose fibers by use of two passages through the drawing frame are shown in colored photographs of breaker and finisher drawing, and of the subsequent roving and yarn. The blending was considered unsatisfactory.

A photo-electric cell permits the control of drawing of roving.

A. Bousquart. *Industrie Textile:* 27-28 (January, 1955); *in French.* Through *Brit. Cotton Ind. Research Assoc. 35:* 324 (1955).

A new photoelectric control system for roving frames is described and illustrated. Two light beams from an incandescent lamp are reflected by two mirrors towards the electrodes of two photoelectric cells encased in a box. They penetrate into the box through two apertures in the front wall and can be intercepted by the roving passing in front of the box. In addition to the photoelectric cells, the electronic apparatus comprises two thyratrons with their relays, resistances and control potentiometers.

F-5 drafting element for roving with adjusto-ratch.

Saco-Lowell Bull. 27: 28-37 (June, 1955).

The F-5 roving drafting assembly and the adjusto-ratch are described. Photographs. Diagrams. Table of data.

Speed frames: top apron drafting and tray weighting.

Platts Bull. 8, No. 10: 314-316 (1955).

Large package roving.

Whitin Rev. 22: 17-25 (May-June, 1955).

Experience at Riegel Textile Corporation in reducing costs and improving quality with large package roving.

The number of doublings on draw frames.

P. I. Aristov. *Tekstil. Prom. 15, No. 1:* 14-16 (1955); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 357 (1955).

The evening of distribution of the fibers, observed in card sliver of normal quality after 10-12 doublings, takes place considerably sooner in short than in long sections, and the irregularity in the product obtained, originating from drawing out the fiber mass, makes it necessary to increase the number of doublings and, consequently, the draft. Examination of 1-m and 30-mm sections of the sliver showed that best results are obtained with 16 doublings; at a higher number of doublings, the unevenness in short sections increases rapidly. The percentage irregularity of the draw-frame sliver *(N)* obtained can be determined by the equation: $N = H_o\sqrt{n}$, where H_o is the percentage irregularity in the sliver fed and n is the number of doublings.

Measurement of drafting forces—its use and evaluation.

W. Wegener and H. Bechlenberg. *Reyon, Zellwolle u. Chemiefasern No. 1:* 14-19; *No. 2:* 78-83 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 357 (1955).

The testing apparatus, developed by the authors for determining the continuous variation in the drafting forces, is described in detail and various tests are discussed. The application of the respective tests in sliver drafting and the possibilities for the evaluation and utilization of the experimental values are indicated.

Draft and setting mechanism of the selfactor 641.

G. Hadamzyk. *Z. ges. Textil-Ind. 57, No. 5:* 244-249; *No. 6:* 307-309 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 358 (1955).

In this article, the author discusses the draft and its effect on the tensile strength and regularity of yarn without a high twist, and presents experimental results to identify yarns that are suitable for high drafting. The drafting mechanism of the selfactor type 641 is described and its advantages are pointed out.

SPINNING, WINDING, TWISTING B 4

End breakages in worsted spinning. Part 4.

P. P. Townend and L. T. Yu. *Textile Recorder 73:* 87-89 (June, 1955).

The authors discuss the part played in drafting by carrier rollers and tumblers and assess the significance of settings and weights on spinning performances.

Woolen ring frame spinning. Part 6. A comparison of mule and frame-spun yarns.

P. P. Townend and B. Jowett. *Wool Rev. 27:* 39-41 (June, 1955).

Gwaltney spinning frames.

Saco-Lowell Bull. 27: 56-65 (June, 1955).

Features of the Saco-Lowell Gwaltney model SG-1 4-inch gauge spinning frames with the standard drafting element for cotton and the SS-4 drafting element for spinning wool, synthetics, and blends are described. Photographs. Diagrams.

The mill of today. Part 42. Section 2. Facts about yarn carriers.

R. Z. Walker. *Textile Bull. 81:* 78-80 (June, 1955).

Longer traverses, ring size, the cone step, and bobbin length are discussed.

Calculation of the cop volume and determination of its density.

I. G. Obukh. *Tekstil. Prom. 15, No. 1:* 17-20 (1955); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 358 (1955).

The equation given for calculating the cop volume can be used for accurately adjusting the winding mechanism of spinning machines. The specific density of the cop on spinning machines appears to depend mainly upon yarn tension; it increases with increasing yarn tension (for low yarn counts). Other factors (count, twist, etc.) are of less importance. At the same yarn tension, the specific density of cops from weft-winding machines depends upon the twist and yarn count.

YARNS B 5

Speciality acetate yarns. Part 3.

J. Willock and H. M. Averns (Courtaulds Ltd. *Man-Made Textiles 32:* 52-57 (June, 1955).

Continues the discussion of typical applications for speciality acetate yarns, dealing first with yarns in which the characteristic effects are introduced by post-spinning processes and finally, with triacetate yarns. The survey is concluded with a note on the economics of speciality yarns.

Influence of twist on textile yarns. Part 5.

A. Webster. *Textile Mfr. 81:* 277-282 (June, 1955).

A discussion of the effects of over-end winding in warp dressing and beaming, braiding, smallware weaving, lace making and in carpet yarns, etc. Important advantages and applications are dealt with from the point of view of spinning, winding, warping and weaving.

Non-tarnishing metallic yarns.

Fibres 16: 199-201, 218 (June, 1955).

Aluminum foils laminated between two layers of plastic to produce Lurex metallic yarns, non-tarnishing, odor free and washable.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

The lease in sectional warping.

A. Braitis. *Industrie Textile:* 39-40 (January, 1955); *in French.* Through *Brit. Cotton Ind. Research Assoc. 35:* 328 (1955).

The apparatus described (developed by Damman) simplifies all warping operations by rapidly dividing the warp by means of 4-8 shafts pro-

vided with heddles having eyelets or mails for the passage of all the threads. The shafts are operated by a crank-shaft. The apparatus can be mounted directly on the beam truck.

Saco-Lowell Positrol slasher.

Saco-Lowell Bull. 27: 76-92 (June, 1955).

Features of the Saco-Lowell Positrol slasher are described in great detail with photographs, photomicrographs, and numerous diagrams.

Sizing and dyeing of hank yarns.

T. Matuschek. *Melliand Textilber. 36, No. 2:* 177-179 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 328 (1955).

In this article the author discusses hank sizing, the pigment padding process, the Wanne-Trimmer yarn-liquoring machine and impregnating-bath compositions for Naphthol AS-TR dyeings, after-treatment of the yarns, and further possibilities of technological development in hank-yarn treatment.

Sizing with linseed oil.

R. Bardet. *Reyon, Zellwolle u. Chemiefasern No. 1:* 20 (January, 1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 328 (1955).

The advantages of linseed-oil sizing of chemical fibers (e.g. of viscose and acetate rayon continuous filament materials) are briefly discussed.

Utilization of tamarind seed pectin in textile industries. Part 1.

G. R. Savur. *Indian Textile J. 65:* 418-421 (April, 1955).

Analysis of the kernel, quality of polyose or pectin, bleaching, advantage of tamarind pectin, mechanism of gelatinization, and sizing of cotton are discussed.

WEAVING C 2

Axminster carpet looms.

Platts Bull. 8, No. 10: 327-331 (1955).

Features of the Platt 8/4 looms are described and illustrated.

Conditions for the practical use of high numbers of revolution in automatic looms.

H. Maier. *Textil-Praxis (English ed.) No. 2:* 68-73 (May, 1955).

See *TTD 12:* 197 (May, 1955).

Device for determining the speed of the shuttle on looms.

V. D. Khokhlov. *Tekstil. Prom. 15, No. 1:* 29-31 (1955); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 360 (1955).

The simple magnetic device, described and illustrated, gives oscillograms by means of which the shuttle speed can be determined simultaneously and in connection with the performance of other loom mechanisms.

International loom developments.

Skinner's Silk and Rayon Record 29: 602-605 (June, 1955).

The following looms are described and illustrated: the Henry Livesey non-stop automatic shuttle changing loom fitted with the W. E. M. replenishing motion, the Livesey AX automatic pirn changing loom, the Benninger-Fischer automatic four color pirn changing loom for fine filament weaving, the Swedish Tuland automatic loom equipped throughout with ball-bearings, and the Crompton and Knowles M-P multipurpose loom.

Is continuous cleaning of the loom possible?

C. Merlin. *Industrie Textile:* 45-48 (January, 1955); *in French.* Through *Brit. Cotton Ind. Research Assoc. 35:* 329 (1955).

The cleaning device, described and illustrated, consists of two units moving on a bar fixed above them and aligned with the row of looms. The two units are arranged so that the air current from the oscillating tube of one sweeps the front part of the loom, while that from the oscillating tube of the other blows over the back part of the loom. A single motor is used for moving the cleaning apparatus along the bar, for operating the fan and for causing the tubes to oscillate. The shaft of this motor is mounted horizontally, rotating on the frame.

Loom stop motion.

V. K. Gorkov. *Tekstil. Prom. 15, No. 2:* 31-33 (1955); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 360 (1955).

Owing to the arrangement of the shoe brake and some modifications in the automatic stop motion, the recently developed loom AT-100 stops, in the case of warp breakage, in the position of the pick at the moment when the shuttle enters the opposite shuttle box. The mechanism is investigated.

Looms: specifications for nominal width and dimensions of component parts.

German Standards Committee. *Textil-Praxis 10, No. 2:* 157-158 (1955); *in German.*

Through *Brit. Cotton Ind. Research Assoc. 35:* 329 (1955).

The draft of the German specification DIN 64 550 contains the definitions of nominal width, reed space, groove length, width of shaft, and clear space; the nominal widths are given in mm.

Looms with large-size shuttles and automatic looms.

W. Silken. *Textil-Praxis (English ed.) No. 2:* 74-77 (May, 1955).

A new warp stop motion.

B. Duval. *Industrie Textile:* 44 (January, 1955); *in French.* Through *Brit. Cotton Ind. Research Assoc. 35:* 329 (1955).

The new device described (developed by E. Baugnies) comprises two thin metal threads twisted together and soldered so as to form an eyelet for the thread and, below that, an oblong opening for the bars; the ends of the wires are soldered together to form two rigid rods, of which the lower (longer) enters into contact with a perforated drum and closes the electric circuit when a thread breaks. The stop motion is placed between the reed and the loom harness.

Warp tension and weaving control.

J. Starkie. *Textile Mfr. 81:* 293-296 (June, 1955).

This article describes and illustrates details of the Roper, Northrop, Textomatic, Toyoda and Hattersley motions.

Weaving defects. Part 3. Causes of quill break-outs.

C. O. Cronic. *Textile Ind. 119:* 88-89 (July, 1955).

Work study in weaving.

Textile Merc. 132: 197-198 (February 4, 1955); 237-238 (February 11, 1955); 283-285 (February 18, 1955); 329-330 (February 25, 1955); 368-371, 373-374 (March 4, 1955) and 417, 419-421 (March 11, 1955). Through *Brit. Cotton Ind. Research Assoc. 35:* 351 (1955).

These articles discuss: standardization of weaving shed conditions (temperature and humidity), loom timing and setting (use of Shirley gauges), relation of number of looms per weaver and frequency of warp breaks, loom features to improve efficiency; improved methods in Lancashire loom utilization; wages systems in Lancashire loom weaving; making the best use of automatic looms by work load assessment; wages systems for automatic looms.

KNITTING C 3

Highlights of the 42nd Knitting Arts Exhibition.

Knitter 19: 47-62 (June, 1955).

Laying out knitted fabrics.

E. Prusa. *Textile World 105:* 114-115 (July, 1955).

Plain squared paper is the only requisite for this easier method of laying out all types of knitted fabrics, including jersey, rib, purl, interlock, rack, tuck, and welt cloth.

10-point program to control F-F hose length.

G. Burnett (Wisteria Hosiery Mills, Inc.). *Textile Ind. 19:* 120-123 (July, 1955).

What constitutes an ideal knitting package?

I. Schwartz. *Textile Age 19:* 46-50 (July, 1955).

FABRICS C 4

Crease recovery of fabrics. Part 1. Some tensile properties of wool, Vicara, and rayon fibers and their relationship to fabric crease recovery.

J. F. Krasny and A. M. Sookne (Harris Research Laboratories, Inc.). *Textile Research J. 25:* 493-498 (June, 1955).

A study has been made of some single fiber properties of wool, rayon, and Vicara zein fibers at various relative humidities, and the crease recoveries of fabrics made from the same fibers have been measured under identical conditions. In general, the wool and Vicara are similar in many load-extension properties. A fair correlation was found between fabric crease recovery on the one hand, and fiber tensile and work recovery on the other hand at low and normal humidities. At high humidity, and particularly with wet fabrics, however, this relationship no longer holds. A general correlation also seems to exist between fabric crease recovery and work returned by stretched fibers during retraction from extension to 4%. 4 references.

Effect of micro-structure on the creasing properties of cellulose hydrate fibers

E. Elod, H. M. Holz and W. Graeser. *Rayon, Zellwolle u. Chemiefasern No. 1:* 7-11 (January, 1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 344 (1955).

Photomicrographs of single fibers examined by means of the polarization microscope are given

to show the behavior of the fibers to bending and compressing forces. Results are discussed, and differences between untreated and resin-impregnated viscose and cuprammonium rayon fabrics are pointed out.

Research on the crease resistance of cloth. Part 4. The effect of yarn twist on the crease resistance of fabrics.

S. Ikeda and S. Okajima. *J. Soc. Textile Cellulose Ind. Japan 11, No. 1:* 28-31 (1955); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 35:* 375 (1955).

The crease resistance of plain-weave fabrics (4-shaft twill and 8-shaft satin) made from cotton yarns from 600, 1000 and 1400 twists per meter was measured and it was found that it decreases generally with increasing twist, but in some cases it increases or goes through a minimum or maximum point. The results are discussed.

Faults in woolen manufacturing. Part 5.

Textile Recorder 73: 82-84 (June, 1955).

This final article in a series which has dealt with the identification of faults from the appearance of the finished fabric, discusses those faults which arise from the uneven distribution of processing dyes and chemicals.

Design in woven structure. Part 31. Spot weaves.

D. C. Snowden. *Wool Rev. 27:* 47 (June, 1955).

Jacquard designing.

O. Hughes. *Textile Ind. 119:* 94-101 (July, 1955).

Methods for simplifying Jacquard designs and reducing their cost.

Production and utilization of nonwoven fabrics.

H. L. Leventhal (Visking Corporation). *Am. Dyestuff Reptr. 44:* P464-P466 (July 4, 1955).

A general survey.

FINISHING AND CHEMICAL PROCESSING D

Corrosion problems in dyeing and finishing works.

A. J. Hall. *Fibres 16:* 193-198 (June, 1955).

A discussion of the complex problems arising from corrosion in dyeing and finishing.

How to handle Dacron-cotton blends

J. S. Rumsey. *Modern Textiles Mag. 36:* 69-72 (July, 1955).

Wash-and-wear qualities, yarn twist and fabric count, and finishing procedures (brush, heat set, shear, and singe) are discussed.

CHEMICAL PROCESSES D 1

Action and formulation of antistatic preparations.

W. Sprenkmann. *Melliand Textilber. 36, No. 2:* 174-177 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 329 (1955).

The development of brightening agents and lubricants which act antistatically and experimental conditions are reviewed, with reference to literature and data.

Antistatic specialties. Part 1.

R. D. Fine (Atlas Powder Co.). *Soap and Chemical Specialties 31:* 149-155, 197 (June, 1955).

Static problems with textiles and antistatic chemical agents and their application to automobile seat covers, carpets, in dry cleaning, etc., are discussed.

Peroxide bleaching.

B. P. Ridge. (*Letter to the editor.*) *J. Textile Inst. 46:* T371-T374 (May, 1955).

Effect of kiering on the crystallinity of cotton cellulose.

M. L. Nelson, L. Segal and H. M. Ziifle (Southern Regional Research Laboratory). *Textile Research J. 25:* 534-540 (June, 1955).

Although kier boiling is a common commercial treatment applied to cotton, its effect on the crystallinity of cotton cellulose apparently has not been investigated. In the present work, the effect on the crystalline-amorphous ratio of a laboratory kiering and of alcohol extraction and boiling in water under pressure has been studied. Acid-hydrolysis crystallinity determinations and moisture-sorption measurements on three varieties of cotton have indicated (1) that standard purification treatments can increase the crystallinity of raw cotton; (2) that the extent of crystallization varies with the individual sample; and (3) that the crystallinity values reported in the literature for purified cottons are probably higher than those for native cottons because of the changes induced by the purification treatments. 22 references.

Properties, occurrence, preparation, commercial products and uses of sorbite.

W. K. Kempf. *Starke 6, No. 11:* 269-274; *No. 12:* 303-306 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 363 (1955).

This is a review, with 145 references, on the chemical and physical properties, occurrence, preparation, commercial German and foreign products, and uses of the hexavalent alcohol, d-sorbite (sorbitol). A few references to its use as a textile auxiliary are included.

Adhesion of rubber to textiles.

W. C. Wake. *Proc. Instn. Rubber Industry 1, No. 6:* 176-180 (1954). Through *Brit. Cotton Ind. Research Assoc. 35:* 338 (1955).

In this lecture are discussed the nature of the rubber-to-textile bond, damage suffered by the textile in breaking the bond, and the mechanism of the rupture of the bond.

Resin finishing of fabrics.

P. Egli. *Textil-Rundschau 10, No. 2:* 64-69 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 338 (1955).

In this review, the author discusses the causes of creasing, principles of the crease-resisting finish, products used, pretreatment of the textiles and preparation of the impregnating bath, catalyst and odor formation, condensation, and testing methods (testing the effect of the anti-crease finish and the deposit of the resin, and quantitative and qualitative methods for determining the resins in fabrics). 44 references.

Wash-and-wear war.

Chemical Week 76: 86-88 (June 25, 1955).

Urea-formaldehyde, melamine, and reactant resins are current front runners in the race to make better-looking and easier-to-care-for cottons. The current status of wash-and-wear cotton finishing is reported.

A survey of European crease-resist finishes on spun viscose rayon fabrics. Part 2.

H. W. Best-Gordon, E. Pieper and C. P. Tattersfield. *Man-Made Textiles 32:* 68-72 (June, 1955).

A comparative study of standard commercial results from eight countries.

Post-condensation of crease-resistant finishes.

W. Vauck. *Textil- u. Faserstofftech. 5, No. 2:* 120-121 (1955); *in German.* Through *Brit. Cotton. Ind. Research Assoc. 35:* 338 (1955).

During storage of crease-proofed materials, the cross-linking of the precondensates (beginning or proceeding during condensation) was found to continue, and, especially in the case of carbamide resins, to increase the washfastness and crease relaxation angle of the impregnated fabric. Practical examples are discussed, and the after-effects to be expected as regards the anti-crease effect and wash-fastness of carbamide-resin impregnations (according to the condensation conditions used) are indicated.

Crease-resistant finishing of rayon fabrics and cotton-rayon blended fabrics.

R. Hunlich. *Reyon, Zellwolle u. Chemiefasern No. 1:* 29-30 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 338 (1955).

Detailed directions are given for the treatment of rayon fabrics with crease-resistant finishes based on urea- or melamine-formaldehyde, and the effect of various catalysts on the properties of the resin is briefly discussed.

Spooner polymerizer.

W. W. Spooner. *Textile Merc. 132:* 911-912 (May 27, 1955); *Dyer 113:* 998 (June 24, 1955).

A new machine, developed by the Spooner Dryer and Engineering Co. Ltd., maintains good control of crease-resist finishing by the polymerization of synthetic resins.

Effect of flameproofing agents on cotton cellulose.

H. A. Schuyten, J. W. Weaver and J. D. Reid (Southern Regional Research Laboratory). *Ind. Eng. Chem. 47:* 1433-1439 (July, 1955).

When textiles treated with flameproofing agents were burned on a hot plate at various temperatures, the treated samples decomposed at lower temperatures, reached equilibrium more rapidly, and left much larger residues than did untreated controls. The relationship between the amount of residue and the pickup for a number of flameproofing agents is discussed, and the rates of decomposition of treated and untreated samples at various temperatures are compared to illustrate the catalytic effect of the flameproofing agent. The vertical flame test is discussed in the light of this catalytic effect. Various analytical methods have been employed to determine the fate of the flameproofing agent; in all cases examined a Lewis acid is the active flameproofing agent. The residual chars have been analyzed for carbon and hydrogen content, and a large proportion of the cellulose is almost completely dehydrated, indicating considerable reduction in the

amount of carbonaceous gases and a shift toward the ideal products, carbon and water. These findings are related to previous theories of flameproofing cellulose and to the general explanation presented in an earlier paper.

Flameproofing compounds for nylon.

M. Fishman (Lee Dyeing Co.). *Am. Dyestuff Reptr. 44:* P403-P404 (June 6, 1955).

Although pure nylon is quite flame-resistant, nylon in the presence of other fibers or finishing agents that can form a framework for the nylon may become quite flammable. It is pointed out that thiourea-formaldehyde cocondensed with urea-formaldehyde produces a wash-fast inflammable finish on nylon-containing fabrics.

Mothproofing for wool-synthetic blends.

N. Karr. *Modern Textiles Mag. 36:* 49-50 (July, 1955).

When man-made fibers are blended with wool, they can be eaten by moth larvae. A new mothproofing chemical, Mitin, gives these blends durable protection.

Use of Dieldrin to protect wool against insect damage.

M. Lipson and R. J. Hope. *Nature 175:* 599-600 (April 2, 1955). Through *Brit. Cotton Ind. Research Assoc. 35:* 367 (1955).

It has been found that Dieldrin in low concentrations (0.05 per cent) is a most effective mothproofing agent for wool, and is unexpectedly fast to washing and dry-cleaning.

Protection of textiles against rot and mildew. Part 1. Testing methods.

H. M. Ulrich. *Textil-Praxis 10, No. 2:* 187-189 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 339 (1955).

The author reviews finishes and processes that protect textiles against mildew, bacteria and rot, and discusses the susceptibility of various fibers, preventive measures, and rot-proofing of textiles by (1) modifying the cellulose molecules (acetylation, formalization, etc.), (2) providing a protective layer between the organism and the fiber (impregnation with polyvinyl acetate, etc.), (3) inactivating the enzyme produced by the fungi, or (4) destroying the micro-organisms by means of fungicides incorporated in the fibers. The properties required from an ideal rot-proofing agent are enumerated. 13 references.

DYEING AND PRINTING D 2

Compilation of the most important literature on continuous dyeing.

SVF Fachorgan Textilveredlung 10, No. 2: 94-97 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 334 (1955).

A list is given of books and pamphlets, and of articles published in the technical press on continuous dyeing processes from 1936-1955.

Difficulties in dyeing carbonized fabrics.

S. Minges. *Textil-Praxis (English. ed.) No. 2:* 92-94 (May, 1955).

Experimental application of a turbodynamic principle in dyeing.

D. Fornelli (Sesacolor SA, Milan, Italy). *Am. Dyestuff Reptr. 44:* P456-P458 (July 4, 1955).

A new experimental dyeing machine is described, which permits dyeing at temperatures below the boil and at normal pressure by the application of a turbodynamic principle. In dyeing felts or other materials that are most difficult to penetrate, perfect penetration is obtained because of cyclonic turbulence in the dyeing box. The advantages found in laboratory tests compared with the usual pot dyeing are described. A brief account of the possible development of this new principle is given. 8 references.

The pad roller dyeing method and its technological and economical uses.

C. O. Eriksson, N. O. Landquist and B. F. Mellbin. *SVF Fachorgan Textilveredlung 10, No. 2:* 78-83; *No. 3:* 125-131 (1955); *Textil-Rundschau 10, No. 2:* 51-64 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 334 (1955).

The authors describe the new Swedish pad-roller dyeing machine which consists essentially of a normal two-roller padder with economy frame, temperature and level controls, an infra-red heating zone and a hot chamber. The fabrics are padded, heated in the infra-red zone and rolled up in the hot chamber, and dyeing is finished at constant temperature and humidity. The economy of this process, as compared with winch-beck, jig-, and pad-steam dyeings, is emphasized. The machine is also suitable for dyeing cotton and rayon with direct and copperable dyes, and for union and viscose-acetate fabrics and woolen piece goods. It has been used experimentally for dyeing cellulose acetate fabrics and piece goods from synthetic fibers, and for desizing cotton fabrics.

Dyeing and finishing synthetic tubular knit goods.

R. C. Geering (Princeton Knitting Mills). *Am. Dyestuff Reptr. 44:* P459-P463 (July 4, 1955).

The author presents a flow sheet of the procedures followed in processing synthetic tubular knit goods from the grey room to the final finishing of dyed or printed materials. The purposes, principles, and equipment for carrying out the various steps are explained.

Dyeing and processing elastic nylon hose.

J. V. Boone (Geigy Chemical Corp.). *Am. Dyestuff Reptr. 44:* P413-P416 (June 20, 1955).

The author explains the manufacture of stretchable nylon hose from beginning to end. Conditioning, preboarding, choice of dyestuffs, and dyeing methods are discussed.

Effect of chlorine on dyed nylon.

A. N. Davidson and R. Preston (Wool Industries Research Assoc.). *J. Soc. Dyers Colourists 71:* 235-243 (May, 1955).

After dry chlorination of wool, the chlorine retained by the fibers is present as hydrochloric acid (i.e. is extractable by alkaline solutions); while with nylon it is shown that the chlorine is more strongly combined, so that it is not completely extracted by sodium carbonate solution but can be removed by sodium bisulfite solution. Generally, absorption of chlorine by nylon is attended by an increase in fluidity of the nylon in *m*-cresol and a corresponding decrease in tensile strength; the degree of absorption of chlorine appears to vary with the type of dye used. The presence of wool has a "buffering" action on the uptake of chlorine by nylon and hence tends to protect the nylon from excessive damage. The observations are illustrated in detail by tabulated and graphed data, together with colorimetric data for a representative selection of the dyes before and after dry chlorination. 9 references.

Influence of the physical state of dyes upon their light fastness.

G. Baxter, C. H. Giles, M. N. McKee and N. Macaulay (Royal Technical College, Glasgow). *J. Soc. Dyers Colourists 71:* 218-235 (May, 1955).

From a study of the quantitative relationship between light fastness and dye concentration conclusions are drawn regarding the physical state of dyes in air-dry substrates, on the basis of a simple theoretical model representing the nature of particle growth with increase in concentration. 29 references.

Metallizable and metallized dyes.

C. H. Fischer-Bobsien. *Z. ges. Textil-Ind. 57, No. 3:* 156-158; *No. 4:* 209-210 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 336 (1955).

In continuation of previous articles, the author reviews metallizable tanning agents and basic dyes used in cellulose dyeing, metallizable wool and fur dyes, and metallizable substantive dyes for dyeing cellulose. 58 references.

Dyeing of Arnel.

National Aniline Division, Allied Chemical and Dye Corp. *Dyestuffs 41:* 28-32 (June, 1955).

A modified version of Technical Service Circular no. 6.

Improvement of the dye affinity of dead cotton fibers.

W. Schon. *Textil- u. Faserstofftech. 5, No. 2:* 123-124 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 335 (1955).

A general review is made of the possibilities of improving the dye affinity of dead cotton fibers. Some suitable dyes are mentioned and reference is made to an alkaline product (developed by the Farbenfabrik Wolfen) with high dispersing and detergent action, which causes swelling of the cotton fiber and disintegration of the impurities adhering to it. Boiling of the cotton with 4-6 per cent of this agent and 2-3 per cent sodium hydroxide for 2 hours gives best results as regards improvement of its dye affinity.

Dyeing jute yarn.

Dyer 113: 821-823 (May 27, 1955); 901-902 (June 10, 1955); 983-985 (June 24, 1955).

Part 3: obtaining satisfactory penetration with basic colors, salting procedure, and back-tanning. Part 4: acid colors on jute yarn, hank dyeing procedure and addition of dyebath assistants, changing batches, and cooling-off. Part 5: direct cotton dyes on jute yarn.

Characteristics and dyeing properties of Merinova.

Riv. Tessile 9, No. 10: 1153-1156 (1954); *in Italian.* Through *Brit. Cotton Ind. Research Assoc. 35:* 335 (1955).

Properties and blends of Merinova (with wool, viscose and wool, viscose, Lilion or other polyamide fibers) are discussed and directions are given for dyeing these mixtures and for bleaching the fabrics.

Dyeing and finishing Orlon type 42 acrylic fiber.

E. I. du Pont de Nemours and Co., Inc. Wilmington 98, Delaware: 1955. 26p. Technical information bulletin OR-51.

New understanding of the dyeing of polyacrylonitrile fibers.

C. M. Dorset. *Textile Mfr. 81:* 326-329 (June, 1955).

The theory and practice of the cuprous ion process is discussed.

New equipment for screen printing.

A. Franken. *Textil-Praxis (English ed.) No. 2:* 78-84 (May, 1955).

Tenter device for screens, varnish removing machine, squeegee, and adhesive appliances are discussed.

MECHANICAL PROCESSES D 3

Essentials for good napping.

Textile Ind. 119: 77-79 (July, 1955).

Pointers are given for good napping of cotton goods. Diagrams. Photographs.

The application of teasels in the cloth industry.

B. Hahn. *Textil-Praxis (English ed.) No. 2:* 85-89 (May, 1955).

DRYING D 4

High pressure drying.

J. Balslev. *Tidsskr. Textiltek. 13, No. 2;* 36-40 (1955); *in Danish.* Through *Brit. Cotton Ind. Research Assoc. 35:* 339 (1955).

In this article, the author discusses the principles of drying cheeses under pressure in a closed system. This method is more economical than that normally used, owing to the reduction of drying time.

TESTING AND MEASUREMENT E

Numerical values and quantitative determinations in microscopy.

T. E. Wallis. *Research 8:* 226-234 (June, 1955).

The miscroscopical determination of numerical values is primarily applicable to vegetable matter. Such values are often criteria (e.g. palisade ratio, stomatal index) which characterize certain substances, particularly powders. Some accessory apparatus must be fitted to the microscope for determinations of this type. 15 references.

A useful cross-sectioning slide and some of its applications.

E. C. Jolliff (American Enka Corp.). *Textile Research J. 25:* 541-545 (June, 1955).

Description of the slide, sample preparation and method of sectioning, and applications. 4 references.

Sampling plans for inspection by variables.

G. J. Lieberman and G. J. Resnikoff (Stanford University). *J. Am. Statistical Assoc. 50:* 457-516 (June, 1955).

Ready-made sampling plans and operating characteristic curves are presented for use in acceptance sampling by variables. These would be most suitable for strength tests, yarn number determinations, and other variables of significance in vendor-consumer relationships in the textile industry. This work, sponsored by the Office of Naval Research, and involving considerable computation work, should find widespread acceptance. Such organizations as ASTM and certain textile manufacturers, such as Bigelow-Sanford, have already been adopting these techniques. However, they were forced to use cumbersome formulas in place of the ready-made tables and curves now made available. 15 references.

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OVER 120 YEARS OF SERVICE IN TEXTILES

Data handling systems.

S. D. Ross. *Consulting Engineer 6:* 59-63 (July, 1955).

Use of such typical readout devices as digital indicators, automatic electric typewriters, adding machine tape printers, card punch, paper tape punch, and magnetic tape recorders in monitoring and logging a process from automatic instruments, measuring flows, pressures, temperatures, and other variables.

A reliable physiological index for evaluating summer clothing.

B. L. Perti and B. B. Lal (Technical Development Establishment, Kanpur, India). (*Letter to the editor*). *Nature 175:* 947 (May 28, 1955).

Use of a simple evaporative cooling index based on the principle that human comfort is related to skin temperature is described.

Study of the elastic properties of textile materials by the oscillation method, under dynamic deformation conditions.

V. A. Gordeev. *Tekstil. Prom. 15, No. 1:* 37-41 (1955); *in Russian.* Summary in *Brit. Cotton Ind. Research Assoc. 35:* 371 (1955).

Instruments for the textile scientist: the Physical Society show.

Skinner's Silk and Rayon Record 29: 646-647 (June, 1955).

The type 1102 "Linra" Photo-Slubber, the Extensometer, which should find application in measuring length changes in textile fibers, the Mikrops Industrial Projector, and the Dawe Instruments Type 1408 Sound Level Indicator are illustrated and briefly described.

FIBERS E 1

Simple methods for the preparation of thin fiber sections and fiber impressions.

W. Steffens. *Textil-Praxis (English ed.) No. 2:* 55-60 (May, 1955).

See *TTD 12:* 312 (July, 1955).

Differentiation of polyamide fibers.

H. Ludewig. *Textil-Praxis (English ed.) No. 2:* 64-66 (May, 1955).

See *TTD 12:* 21 (January, 1955).

Experiences in cotton testing.

R. Walz. *Textil-Praxis 10, No. 2:* 131-133 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 344 (1955).

Testing methods developed for determining cotton quality are reviewed and a laboratory method is mentioned which makes it possible to prepare a staple diagram within 25 minutes by measuring the light transmission of sections of the fiber tuft arranged in order of the staple length. Mean values for tensile strength, fineness and fiber length are tabulated for cottons from various countries.

Determination of friction values on fibers and filaments.

O. Becker. *Z. ges. Textil-Ind. 57, No. 5:* 254-259 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 371 (1955).

The Reiwigraph tester described makes it possible to determine frictional forces occurring by rubbing fiber or yarn against fiber or against hard metal surfaces and to record them in the form of diagrams as a function of time. From these diagrams, reliable values for the friction coefficients can be found by suitable evaluation methods.

YARNS E 2

The medium- and long-term variations of a yarn. Part 1.

P. Grosberg (South African Textile Research Institute). *J. Textile Inst. 46:* T301-T309 (May, 1955).

The irregularity of a yarn can be fully described only by means of the *B-L* curve. This curve shows the dependence of the variation in weight of lengths of yarn on that length. The variance between the weights of yarn whose length is greater than about 25 cm cannot be predicted in terms of any of the present theories for determining the shape of the *B-L* curve. A method of determining this irregularity is developed whereby it is possible to determine the variance-length curve of a yarn if the total variance of each of the slivers produced in its manufacture is known. 11 references.

The medium- and long-term variations of a yarn. Part 2.

P. de Malatinszky and P. Grosberg. *J. Textile Inst. 46:* T310-T316 (May, 1955).

The equations for the variance-length curve of a yarn which were deduced in Part 1 are examined experimentally and found to agree with the results obtained. It is further shown that it is possible to determine if any of the intermediate slivers in the last five processes are excessively irregular from the variance-length curve of the yarn. 6 references.

The medium- and long-term variations of a yarn. Part 3. The shape of the B-L curve for large values of L.

P. Grosberg. *J. Textile Inst. 46:* T317-T321 (May, 1955).

It is shown that the variance-length curve of a yarn is a straight line when plotted as a log-log curve. This result requires the use of a certain empirical relationship due to Huberty. The value of the slope of the log *B*-log *L* curve is deduced and is shown to agree with experimental data. 9 references.

Stress-strain relationships in yarns subjected to rapid impact loading. Part 1. Equipment, testing procedure, and typical results.

W. K. Stone, H. F. Schiefer and G. Fox. *J. Research Nat. Bur. Standards 54:* 269-276 (May, 1955); *Textile Research J. 25:* 520-528 (June, 1955).

Equipment is described for elongating yarns by longitudinal impact at velocities ranging from 10 to 100 meters per second. The rate of straining at impact varies from about 100,000 to 500,000 percent per minute. A procedure is discussed for obtaining load-elongation curves for loading and for unloading of the specimen and for loading to rupture in a time interval of only a few milliseconds. The results of a typical loading and unloading test are presented. 37 references.

Stress-strain relationships in yarns subjected to rapid impact loading. Part 2. Breaking velocities, strain energies, and theory neglecting wave propagation.

F. L. McCrackin, H. F. Schiefer, J. C. Smith and W. K. Stone. *J. Research Nat. Bur. Standards 54:* 277-280 (May, 1955); *Textile Research J. 25:* 529-534 (June, 1955).

The behavior of a yarn specimen fastened at one end to a head mass and at the other end to a small tail mass is analyzed for longitudinal impact of the specimen at the head. The analysis leads to a basic formula for limiting breaking velocity, which is a characteristic property of the material and independent of the dimensions of the specimen. A simple procedure is described for obtaining its value. The values for cotton, nylon, and undrawn nylon yarns tested at room temperature are found to be 130, 228, and 550 meters per second, respectively. The practical application of the limiting breaking velocity to safety engineering is shown by an example on safety lines. Formulas are derived for computing energy to any strain under impact loading, and the computed values are found to agree with those obtained from the area under the impact load-extension curves. 6 references.

A new tensile strength tester for yarns.

H. Kunze. *Z. ges. Textil-Ind. 57, No. 4:* 202 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 346 (1955).

The new tester described (developed by K. Zweigle) makes it possible to regulate the rate of loading within a range of 40-500 mm/min. and to adjust the test length and stroke to any desired values (total stroke 760 mm). The tensile strength is registered on a circular scale; measuring ranges of 0-500 g, 0-2,000 g and 0-5,000 g can be set by attaching the respective load to the pendulum which, at sample break, returns to zero position. A recording device for recording the load-elongation curve is supplied on request.

Apparatus for determining the maximum permissible yarn tension.

K. Halbach. *Textielwezen 11, No. 2:* 25-26 (1955); *in Dutch.* Through *Brit. Cotton Ind. Research Assoc. 35:* 346 (1955).

Constructional details are given of the apparatus for measuring the elasticity limit of yarns (critical tension) and data obtained for viscose, cuprammonium and acetate rayon, Perlon, nylon, Orlon, and natural silk, are tabulated.

The dynamic tensile mechanical properties of textile filaments and yarns.

H. Tipton (British Cotton Industry Research Association). *J. Textile Inst. 46:* T322-T361 (May, 1955).

The dynamic tensile mechanical properties of a textile yarn are of practical interest in that they determine the behavior of yarns subject to forces of a periodic nature such as occur, for example, in tire cords and transmission belts. In this paper, the apparatus and procedure used in measuring the dynamic properties of twenty-three textile yarns and their dependence on static and dynamic strain are described. 30 references.

Permanent curling of synthetic fibers. A challenge to the Koechlin formula.

M. Dupont. *Industrie Textile:* 37-38 (January, 1955); *in French.* Through *Brit. Cotton Ind. Research Assoc. 35:* 325 (1955).

The author refers to the Helanca process for the production of permanently crimped synthetic fibers by subjecting yarns to a high twist, fixing them in this state by thermal treatment and, finally, untwisting. Since it has been found that

the Koechlin formula for determining the optimum twist $T = a\sqrt{N}$ where T is the twist, a the twist constant and N the yarn count) is not satisfactory for different yarn counts, a new formula is introduced $T = 275{,}000/(D + 60) + 800$ (where T is the optimum number of twists and D is the denier of the yarn).

Devices for determining the adhesive and slipping properties of slivers and rovings.

H. Stein. *Textil-Praxis 10, No. 2:* 133-140 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 324 (1955).

Owing to the fact that the individual fibers differ greatly in their surface properties and the forces required for loosening and drafting of the fibers can be considerably influenced by brightening or lubricating agents, the determination of the adhesive and slipping properties of slivers and rovings is of particular importance. The testing devices, described and illustrated, make it possible to record the course of the adhesive and slipping characteristics of the fibers in the form of diagrams, and to determine the magnitude of the occurring stretching and drafting forces and the elongation value due to adhesion.

Simplified determination of yarn diameter. Part 2.

B. L. Whittier and S. A. Mavlankar. *Textile Bull. 81:* 88-93 (June, 1955).

See *TTD 12:* 314 (July, 1955).

FABRICS E 3

The photoelectric colorimeter applied to the regularity measurement of fabrics.

A. Barella, C. Pujol and J. Cegarra. *J. Textile Inst. 46:* P325-P327 (May, 1955).

In previous papers, various devices were described for measuring the irregularity of fabric by the photometric examination of either the transparency of the fabric or its reflecting power. The present paper describes an attempt to apply a commercial photoelectric colorimeter to such measurements. 4 references.

Flammability testing: its relation to the law.

C. A. Baker (United States Testing Co.). *Am. Dyestuff Reptr. 44:* P401-P403 (June 6, 1955).

The author discusses the development and use of the flammability testing method and points out that a fabric is really unsafe when the backing burns through in the test as presently conducted.

Apparent and real effect of washing on the condition of the fabric

H. Schwerdtner. *Textil- u. Faserstofftech. 4, No. 12:* 721-728 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 309 (1955).

Investigations have shown that the previous experimental results obtained on spun-rayon fabric strips have only a relative value. The wide scattering of the values obtained by determining the tensile strength of the fabric indicate that the stress on the washed fabric is not uniform. The use of a 5-cm test-length (instead of 10-20 cm) is suggested so as to exclude the effects of friction, adhesion and surface characteristics on the tensile-strength value, and the use of rayon fabric as testing material is recommended, which has a greater internal uniformity and immediately shows by its increased irregularity if the limit of deviation is exceeded. The nature of the damages and their origin can in this way be ascertained. Together with the determination of the degree of polymerization, the total loss can be determined as the sum of the chemical and mechanical loss components. Experiments with detergents not containing bleaching agents showed that the chemical loss is about 15 per cent, whereas the mechanical loss can reach 85 per cent.

OTHER E 4

A rapid method for the volumetric determination of antimony, copper and iron in textile materials

A. G. Hamlin (British Cotton Ind. Research Assoc.). *J. Textile Inst. 46:* T247-T255 (April, 1955).

Antimony oxide is one of the more important flameproofing agents for textile materials, and recent work connected with the development of plastic-coated heavy canvases for protective purposes has demanded a rapid and accurate method for determining antimony in the products. A method is described whereby antimony is reduced to its lower valence state by the action of titanous chloride in hot dilute perchloric acid solution, a short period of heating suffices for the oxidation of the excess of titanous chloride by the perchloric acid, which does not affect the reduced antimony compound. During the course of the work it was found that copper and iron could also be reduced in the same manner. The method is rapid and precise and is subject to few interferences. It is possible to determine antimony and copper, or antimony and iron in presence of each other, but copper and iron cannot be determined separately when both are present. 5 references.

Determination of vegetable matter in wooly burr removed at the card

R. P. Harker, J. L. Horner and F. O. Howitt (Wool Industries Research Assoc.). *J. Textile Inst. 46:* T256-T263 (April, 1955).

Vegetable matter, such as burrs and the like, is a common contaminant of raw wool and, in the worsted industry, mechanical devices are incorporated in the card to ensure the removal of the greater part of this impurity, the efficiency of burr removal at this or any other deburring point can be assessed only by determining the vegetable content of samples of the wooly burr. In this paper, examination of published methods for the determination of vegetable matter in burry wools indicates that only caustic soda dissolution affords a reliable technique. This method is suitably modified and a new method, based on preferential dye absorption, is developed. The two methods are found to give values of reasonable accuracy. 7 references.

Viscosity of starch and starch products

Technical Association of the Pulp and Paper Industry. *Tappi 37, No. 11:* 139A-140A (1954). Through *Brit. Cotton Ind. Research Assoc. 35:* 275 (1955).

Details are given of a standard method for measuring the viscosity of starch solutions or suspensions using the referee viscometer of the Corn Industries Research Foundation. It is a revised form of Tappi Suggested Method T637 sm-53.

The Microdyeoscope: microscopical observations on dyeing.

H. E. Millson (American Cyanamid Co.). *Am. Dyestuff Reptr. 44:* P417-P436 (June 20, 1955).

The Microdyeoscope is a combination instrument, which permits microscopic observation and photographing of dyeing and other processes taking place on individual fibers in a very small cell, where bath conditions closely like those holding in large-scale work can be maintained. This report opens with a complete description of this instrument and an explanation of how it works. The author and co-inventor has used the Microdyeoscope to study processes and phenomena of interest in textiles, including scouring grease wool; dyeing acid and milling dyes on wool; precipation of dyes on fibers; dyeing chrome dyes; action of leveling agents in wool dyeing; histology of wool subjected to different processes; bilateral effects in wool; bronzing in cotton dyeing; acetate dyeing; vat dyeing with circulation of pigment before reduction; and dyeing Dynel with milling dyes in the presence of a carrier. Microphotographs. Diagrams. 22 references.

INDUSTRIAL ENGINEERING F

Machine interference. Part 1.

Textile Merc. 132: 987-988, 1009 (June 10, 1955).

A review of methods of computing machine interference; i. e., the probability that two or more machines will be down at one time, waiting for servicing, and thereby reducing overall machine efficiency of a group of machines assigned to one operator. The formulas of Fry, Ashcroft, Jones, and Benson and Cox are discussed, together with their relative merits. 6 references.

Manufacturing improvements through automation may standardize textiles.

Am. Textile Reptr. 69: 19-22, 42 (June 16, 1955).

Automation possibilities in the textile industry are discussed.

Developing the effectiveness of a textile mill. Part 2

A. Ormrod. *Textile Merc. 132:* 772-778 (May 6, 1955).

Manufacturing policy, equipment policy, and research and development policy are discussed.

Present-day cotton mills in Japan: why India is lagging behind

M. Viswanathan (Swadeshi Cotton Mills, Kanpur). *Indian Textile J. 65:* 330-335,337 (March, 1955).

A comparison of Indian mills with those in Japan.

Forms for calculating the frequency of periodic work duties

S. Barkin. N. Y.: Textile Workers Union of America, CIO, 1954. 56 p. 75¢.

This booklet forms supplement 2 to the *Textile workers' job primer.* Supplement 1, *Work duty charts for textile operations,* provided a specific listing of work duties for each basic machine in a rayon mill. This volume of forms enables the practitioner to calculate both the doffing and creeling frequencies for each machine on one form.

A. M. training. Part 2. What results, and who uses it?

G. Ladhams. *Knitter 19:* 47-48 (May, 1955).

Purposes for which A. M. (analytical method)

worker training is being used, the type of benefits available from it, and a list of some firms which are using it.

MACHINERY AND MAINTENANCE F 1

Reduction gears in the textile industry.

H. Stein. *Textil-Praxis (English ed.) No. 2:* 49-55 (May, 1955).

Swiss textile machines

J. Meier. *Swiss Tech. No. 1:* 27-95 (1955).

The entire issue of *Swiss Technics,* no. 1, 1955, is devoted to Swiss textile machinery and instruments. Detailed studies deal with Swiss-built machines for spinning and doubling, weaving and knitting, finishing and dyeing, and air-conditioning plants specially designed for the textile industry. A number of short papers describe the textile machinery and products of various Swiss firms.

Tips for maintaining wool spinning frames

Textile Ind. 119: 150-156 (June, 1955).

Steel rolls

A. L. Landau. *Textile World 105:* 132-133, 151,228-230 (June, 1955).

Although steel rolls are half the drafting rolls of a frame, they often get nothing like the attention given top rolls. Good maintenance of steel rolls can more than pay for itself in stronger, more-even yarn, reduced wear on gears, studs, and stands, and less spinning-end breakage.

Trouble shooting on electrical controls

H. C. Colbath (Bibb Manufacturing Co.). *Textile World 105:* 138-140 (June, 1955).

A guide for training a trouble shooter, plus a checklist to use on electrical controls.

Application of electrical equipment to textile machinery. Part 2. Motor rating and characteristics.

F. W. Cox. *Texture 2:* 59-62 (June, 1955).

Plastics construction materials in textile fibers plants.

W. A. Haldeman and E. F. Wesp (E. I. du Pont de Nemours & Co., Inc.). *Ind. Eng. Chem. 47:* 1359-1366 (July, 1955).

Rayon spinning machine components, ventilating ducts and hoods, tanks and process vessels, piping, linings, coatings, filter screens, tubing, and textile machine components and accessories are discussed. Corrosion is the easiest problem to solve at present. The big minus value, particularly in piping, is the temperature limitation.

WASTE DISPOSAL F 2

The BOD of textile chemicals

W. Stafford and H. J. Northup. *Am. Dyestuff Reptr. 44:* P355-P359 (May 23, 1955).

As an aid to textile mills interested in careful and controlled disposal of chemical wastes to minimize stream pollution, the Rhode Island AATCC Subcommittee has determined and collected figures for the 5-day biochemical oxygen demand of about 154 textile chemicals. Table. 8 references.

Cotton slashing with synthetic compounds as a means toward pollution abatement.

D. W. Snyder (Crompton-Shenandoah Co., Inc.). *Am. Dyestuff Reptr. 44:* P382-P384 (June 6, 1955).

A discussion of the problem of stream pollution resulting from the discharge of process wastes from Crompton-Shenandoah's dyeing and finishing plants and the steps taken toward solving the problem by substituting synthetic film-forming compounds for natural sizing materials. The possibility of reducing over-all pollution coming from cotton dyeing and finishing plants by as much as seventy percent may be possible through auxiliary chemical substitution. 2 references.

Textile-waste treatment in Texas.

D. F. Smallhorst. *Am. Dyestuff Reptr. 44:* P386-P389 (June 6, 1955).

This paper presents a brief and condensed report on the activities of the Texas State Department of Health, Engineering Division, in studying the wastes of a textile mill and in determining various methods of treating these wastes so as to render them suitable for discharge into the municipal sewerage system. This work was done several years ago at the request of the industry since the mill wastes were reportedly having a detrimental effect upon the local domestic sewage treatment plant.

Biological percolating filter with recirculation for textile waste waters.

H. Dahlem. *Z. Ver. Dtsch. Ing. 95:* 975-978 (1953). Through *Water Pollution Abstr. 28:* 210 (June, 1955).

In the chemical or biological treatment of textile waste waters, provision must be made for balancing variations in reaction and concentration. For biological treatment the plant is costly and for chemical treatment the operating costs are high. Chemical treatment produces a large quantity of sludge (10-20 per cent of the waste waters), which can not be used agriculturally. Experiments are described on the treatment of waste waters from dyeing and bleaching in percolating filter designed to treat 86 cu. m per day. The filter was preceded by a balancing tank and settled filter effluent was returned to the pump sump. As no domestic sewage was included in the waste waters the content of nutrient materials (nitrogen, phosphate, potash) was very low. The purifying effect of the plant was nevertheless satisfactory. B.O.D. was reduced by 75 per cent. The effluent has an average B.O.D. of 107 mg per liter and was clear and without noticeable color; the pH value was almost constant at about 10. Results of microscopic examination of the effluent are given.

A critical review of the literature of 1954 on sewage, waste treatment, and water pollution. Part 1

H. Heukelekian and others. *Sewage and Ind. Wastes 27:* 515-571 (May, 1955).

This first of two sections of the review deals with analytical methods (100 references), sewage (212 references), and radioactivity (116 references).

A critical review of the literature of 1954 on sewage, waste treatment, and water pollution. Part 2.

H. Heukelekian and others. *Sewage and Ind. Wastes 27:* 633-688 (June, 1955).

Industrial wastes (258 references), including sections on textile wastes (10 references) and wool scouring wastes (4 references), and water pollution (264 references) are covered.

Relation of federal stream-pollution laws to industry.

L. A. Young (U. S. Public Health Service). *Am. Dyestuff Reptr. 44:* P380-P381 (June 6, 1955).

The cooperative program that is being carried on with the states, interstate agencies, industries, and others who are concerned with conserving the quality of water resources is discussed. Many of the states have different laws and requirements for meeting specific standards. The interpretation of these laws in relation to the work of the Public Health Service is discussed.

Biological treatment of mixtures of highly alkaline textile-mill waste and sewage.

R. H. Souther and T. A. Alspaugh (Cone Mills Corp.). *Am. Dyestuff Reptr. 44:* P390-P395 (June 6, 1955).

Pilot plant studies are being made on the treatment of mixtures of domestic sewage and textile-mill dye and finishing wastes by high-rate trickling filters, by activated sludge, and by chemical treatment to determine the most economical and most efficient method for treating such a mixture. Results indicate that pretreatment through a trickling filter and subsequent treatment through activated sludge is the most efficient method and can be satisfactorily used for treating highly alkaline textile wastes. An unusually high removal of BOD and color is obtained. Certain process changes in the plant were also made to reduce the BOD loading through the treatment plant. 7 references.

Bleachery and dyehouse waste studies.

J. L. Brown, Jr. (Cannon Mills Co.). *Am. Dyestuff Reptr. 44:* P385-P386 (June 6, 1955).

A two-year study of the waste produced in the bleachery and dyehouse has been completed. Pilot-plant operation is planned to determine the most economical treatment and design factors for construction purposes. The principles involved, based on analysis of the laboratory studies, will be: (1) segregation of the waste into three components; (2) storage of two of these components; (3) blending of the three components and domestic sewage in proportions that are suitable for biological treatment. The results of the two-year study and the theoretical pilot-plant operation are discussed.

QUALITY CONTROL F 3

Management of quality control in cotton manufacturing

O. P. Beckwith (Fabric Research Laboratories). *Textile Research J. 25:* 433-439 (May, 1955).

Joanna Mills quality tests and variation control methods

J. L. Delany (Joanna Cotton Mills Co.). *Textile Research J. 25:* 440-445 (May, 1955).

Blending by fineness, the Joanna 4-3-2-1 blending system, moisture graph on pickers, effect of card creeling on uniformity, control by graphic

recording, red circling out-of-line drawing deliveries, one hundred per cent roving frame testing, and cotton degradation are discussed.

Control chart applications in textile processing

N. L. Enrick. Charlottesville, Va.: Institute of Textile Technology, May, 1955. 11 p. ITT report no. 8.

Typical control chart applications are shown, together with the benefits attainable, such as more uniform and stronger yarn and cloth, higher productivity from the same equipment, and decreased ends-down, loom-stops, and waste.

Formulas for waste standards

D. E. Baylis. *Textile World 105:* 142-143 (June, 1955).

Describes calculations used in setting up waste standards in yarn preparation, based on the processing involved.

Control chart technique when manufacturing to a specification.

B. P. Dudding and W. J. Jennett. London: British Standards Institution, 1955. 77p. British standard 2564:1955.

Use of control charts for variables and percent defective product, adopted as British standard 2564:1955.

Modern mill controls. Part 6. Quality control data as management tool.

N. L. Enrick. *Modern Textiles Mag. 36:* 60-63 (July, 1955).

Comprehensive summary reports and graphs are described, intended to furnish mill management with the vital information required in planning overall mill operation and control. Examples are given of summaries and graphs pertaining to cloth quality, cloth weight variation, waste reported versus waste sold, end breaks and loom stops, production control based on raw stock yield versus payroll expenditures and waste allowances, and savings reports. Examples used are from actual mill applications.

Comparative standards, an aid for increasing the productivity in cotton spinning.

B. Kirschner. *Z ges. Textil-Ind. 57, No. 4: 199-202; No. 5:* 251-253 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 351 (1955).

The use of nomograms based on values referring to the production, mean count, number of spindles, breakdowns, number of workers, working hours, workers/1000 spindles, kg (production)/working hours, working minutes/kg, cost/kg, etc. is discussed and illustrated by examples.

OTHER F 4

Alabama mill men told how they control reworkable waste

Alabama Cotton Manufacturers Assoc. *Textile Ind. 119:* 161-164 (June, 1955).

Hints on reducing unnecessary fiber waste.

W. A. Thomason, Jr. *Textile World 105:* 116-117, 184-186 (July, 1955).

SCIENCES G

Deterioration of materials: causes and preventive techniques

G. A. Greathouse and C. J. Wessel. N. Y.: Reinhold, 1954. 835 p. $12.00.

This comprehensive book, prepared with collaboration of 24 specialists, describes and analyzes the causes of deterioration in materials and presents techniques for preventing or retarding such deterioration. Chapter 7, by Carl J. Wessel, p. 408-506, surveys textiles and cordage. There are extensive bibliographies. 255 references (textiles and cordage).

CHEMISTRY G 1

Industrial detergency

W. W. Niven, Jr. N. Y.: Reinhold, 1955. 340 p. $8.75.

Chapter 6, p. 99-127, by Martin H. Gurley, Jr., covers detergency in textile processing. 24 references.

Polymer progress. Part 3. Polyamides

J. A. Somers. *Man-Made Textiles 31:* 54-59 (May, 1955).

The molecular structure of polyamide fibers is discussed in detail and the author describes the relationship between basic structures and fiber properties. Recent advances in research have greatly extended the possibilities for modifying the textile properties of polyamides.

Application of calorimetry in dyeing research

A. N. Derbyshire. *Hexagon Digest No. 21:*

12-21 (February, 1955).

The strength of the bonds binding dyes to fibers, of which the heat of dyeing is a measure, is of fundamental importance to the theory of dyeing, so that confirmation of the values of heats of dyeing in some independent way is very desirable. Such an approach is possible by direct calorimetric methods that involve no assumptions as to the mechanism of the dye/fiber interaction. 7 references.

The adsorption of primary alcohols by wool

C. H. Nicholls and J. B. Speakman (Leeds University). *J. Textile Inst. 46:* T264-T269 (April, 1955).

From an analysis of the water-adsorption isotherms of different fibers, Hailwood and Horrobin have obtained estimates of the proportions of amorphous and crystalline material present. The authors of the present paper felt that the validity of this theory should be tested before it was adopted as a means of estimating the crystalline/amorphous ratios of different types of keratin. They have, therefore, applied the Hailwood-Horrobin equation to the adsorption isotherms for wool and three primary alcohols. The results provide further support for the theory. 4 references.

The deposition of polyacrylonitrile in wool. Part 1. Mechanism of the reaction

L. Valentine (Leeds University). *J. Textile Inst. 46:* T270-283 (April, 1955).

The formation of deposits of high polymers inside textile fibers is currently attracting much attention and methods suitable for vinyl polymers have been developed using the ferrous ion-hydrogen peroxide technique. No attempt has hitherto been made to determine the kinetics of the reaction, and so far, with the exception of polyvinylidene chloride, none of the polymers studied has been fiber-forming in its own right. The deposition of a fiber forming polymer might be expected to result in improved properties. This paper deals with the factors affecting the rate of deposition of polymer, while the properties of the treated wools will be discussed in Part 2. 9 references.

On the cause of the variability of ether extracts of soap-scoured wool and top

D. P. Veldsman and R. C. Palmer. *J. Textile Inst. 46:* P286-P289 (April, 1955).

The authors offer an explanation why different laboratories obtain different results in the ether extraction of washed wool or tops. They suggest that the ether quickly extracts oil (and residual grease), but also extracts the regain water, though more slowly. As long as there is water present, residual soap on the wool is hydrolyzed to free fatty acid, and this is also extracted, making the weight of extract too great. Hydrolysis of soap (and, therefore, extraction of free fatty acid) ceases when the ether has removed all the water. The weight of the extract will thus depend on how long the wool in the soxhlet continues to contain water, which, in turn, depends on the initial regain of the wool. Some experimental evidence is given in support of this theory. 5 references.

Effect on wool of boiling in aqueous solutions. Part 2. Solutions of ammonium salts with and without ammonia

R. V. Peryman (Wool Industries Research Assoc.). *J. Soc. Dyers Colourists 71:* 165-170 (April, 1955).

19 references.

Mechanisms of some reactions between N-halogenoamines and wool

C. Earland (Bradford Technical College). *J. Soc. Dyers Colourists 71:* 89-96 (February, 1955).

20 references.

Preparation and properties of regenerated cellulose containing vinyl polymers. Part 2. Staining, swelling, and stiffness characteristics

G. Landells and C. S. Whewell (Leeds Univ.). *J. Soc. Dyers Colourists 71:* 171-174 (April, 1955).

Staining and swelling tests have confirmed that vinyl polymers may be readily deposited inside viscose rayon filaments and that different degrees of penetration are obtained depending on the properties of the monomer employed. Vinyl polymers increase the stiffness of viscose rayon filaments, and as increasing amounts of polymers are deposited internally the filaments become increasingly distended. About 8% of polymer may, however, be introduced without causing any change in the diameter of the fibers. 6 references.

Tetra-o-methyl-D-glucopyranose from o-methylcellulose.

D. I. McGilvray (British Rayon Research Association). *Reply:* E. Pacsu and L. Rebenfeld (Textile Research Institute). *(Letters to the editor). Textile Research J. 25:* 568-569 (June, 1955).

The reaction of formaldehyde with cellulose.

R. Steele (Textile Research Institute). *Textile Research J. 25:* 545-548 (June, 1955).

From observations of the changes produced in the infrared spectrum of cellulose upon treatment with formaldehyde, it has been shown: (1) that the number of free hydroxyl groups in the product is less than in the original cellulose, so that cross-linking must have occurred; (2) that the cross-links most frequently occurring are methylene groups rather than polyoxymethylene chains; and (3) that the unbound formaldehyde present on the cellulose after the reaction, which can be removed by hot-water washing, is either molecularly adsorbed formaldehyde or some uncommon polymer of formaldehyde containing free aldehyde groups. 8 references.

Treatment of cotton cellulose with aqueous solutions of ethylamine.

L. Loeb and L. Segal (Southern Regional Research Laboratory). *Textile Research J. 25:* 516-519 (June, 1955).

Aqueous solutions of ethylamine from 70 to 100% amine have been investigated as to their effectiveness in reducing the crystallinity of cotton cellulose. The degree of crystallinity of cotton cellulose was found to be little affected by ethylamine solutions containing 70% of the amine. The amine solutions of slightly higher concentration were found to strongly reduce both the crystallinity and levelling-off degree of polymerization. This reduction continued with further increase in amine concentration. The sharp break in effectiveness at 70% ethylamine is discussed in terms of hydrogen bonding capacity in the amine-water-cellulose system. 10 references.

The soiling characteristics of textile fibers. Part 1.

A. S. Weatherburn and C. H. Bayley (National Research Council of Canada). *Textile Research J. 25:* 549-558 (June, 1955).

Methods are described for measuring the comparative soiling tendencies of textile fibers. It is shown that reflectance readings on soiled fibers measure an overall effect, part of which can be attributed to the weight and particle-size distribution of the retained soil, and part to the optical properties of the fibers themselves. It is suggested that the "effective soil content", which is defined as the weight of soil retained multiplied by the specific absorbance (of light) of that soil, is a more significant criterion of soiling than is either the weight of soil retained or the decrease in reflectance produced by the soil. Relative values for the effective soil content can be calculated from reflectance readings through use of the Kubelka-Munk equation. The soil retention of the fibers studied increased in the following order: cotton, acetate, viscose rayon, nylon (variable, depending on soiling conditions), wool. The same order was maintained when the time of contact with the soil varied from 5 to 80 minutes. The soil retention of all the fibers increased with decreasing moisture content of the yarn. The presence of even small amounts of oily material in the yarn increased substantially the amount of soil retained. 27 references.

The action of oxidative detergents on cotton fabrics. Macromolecular compounds.

H. Krassig. *Melliand Textilber. 36, No. 1:* 55-58; *No. 2:* 163-166; *No. 3:* 265-267 (1955); *in German.* Through *Brit. Cotton Ind. Research Assoc. 35:* 348 (1955).

Literature data referring to the effect of oxygen and alkali on cellulose are reviewed, and the behavior of various textile materials to the same washing conditions, the extent of fiber damage in dependence of the active oxygen content in the wash liquors, the effect of stabilizers, and the effects of washing treatments on the breaking strength and dry tearing strength, as well as on the morphological characteristics of the fiber, are briefly discussed. Experimental results show that, when evaluating the damages to cellulose fabrics occurring during washing and the quality and efficiency of detergents, it is of advantage to include also measurements (degree of polymerization and viscosity) on nitrated washed samples. 25 references.

Thermodynamics of absorption by fibers from multicomponent baths such as dye baths.

H. J. White, Jr. (Textile Research Institute). *J. Phys. Chem. 59:* 528-531 (June, 1955).

Absorption by fibers from multicomponent baths such as dye baths is discussed using a strictly thermodynamic approach. Equations are given which can be used to determine the equilibrium constant for any distribution equilibrium in the system in terms of measurable quantities and of conventions adopted in defining activity coefficients. Other equations are given for the free energy change, and hence the heat and entropy changes, for certain well defined processes which describe the absorption. 9 references.

Filtration of aerosols by fibrous media.

C. Y. Chen. *Chem. Rev. 55:* 595-623 (June, 1955).

A theoretical analysis, with particular attention to efficiency of collection and the pressure drop. 38 references.

PHYSICS G 2

Symposium on pulsatory and vibrational phenomena.

Ind. Eng. Chem. 47: 1152-1184 (June, 1955).

A group of scientific papers reporting original research in various phases of pulsatory and vibrational phenomena. One objective of this symposium was to suggest areas in pure and applied science that should be examined when pulsations and vibrations are of interest. Numerous references.

A study of the laws of the flow of fluids through fabrics.

C. D. Brown (Georgia Institute of Technology). Wright-Patterson Air Force Base, Ohio: Wright Air Development Center, 1955. 75p. WADC technical report 54-199.

In this study a method is developed of presenting the flow data in a general dimensionless form over a limited range of flow. Under the assumption that the pressure-squared gradient in the flow through a fabric is the arithmetic sum of the viscous ($2a \frac{RT}{g_c} \mu G$), and the inertial contributions ($2\beta \frac{RT}{g_c} G^2$), it is possible to infer the existence of a characteristic length $\frac{\beta}{a}$. The relation between the flow-through-drag coefficient and the Reynolds number based on this characteristic length, $C_f = \frac{2}{N_{Re}} + 2$, is common to all fabrics. The parameters a and β and the characteristic length can be obtained from only two flow measurements. The parameters a and β may be estimated from physical measurements of the cloth, thus permitting a rough prediction of the permeability of the fabric. 16 references.

The effect of voltage and time on the electrical resistance of cotton.

G. E. Cusick and J. W. S. Hearle (University of Manchester). *Reply:* S. P. Hersh and D. J. Montgomery (Textile Research Institute). *(Letters to the editor). Textile Research J. 25:* 563-567 (June, 1955).

The electrical resistance of two protein fibers.

G. E. Cusick and J. W. S. Hearle (University of Manchester). *(Letter to the editor). J. Textile Inst. 46:* T369-T370 (May, 1955).

BIOLOGY G 3

Some chemically modified celluloses and their resistance to fungal degradation.

R. Thomas (Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia). *Textile Research J. 25:* 559-562 (June, 1955).

Cellulose has been chemically modified by partial oxidation with periodic acid followed by coupling with various carbonyl reagents. The modified celluloses have been tested for their resistance to fungal degradation, and some have been shown to inhibit growth at relatively low degrees of substitution (D.S.). The most effective substituent tested was phenylhydrazine, which confers complete resistance to the growth of *Memnoniella echinata* at a D.S. of 0.37%. Some aspects of the inhibitory mechanism and the suitability of the method as a fungus-proofing procedure are discussed. 8 references.

MISCELLANY H

The principles of laundering

W. Brown. London: Heywood, 1955. 104 p.

Taken from a series of lectures to students at the Institution of British Launderers.

How the management consulting profession serves American business

Association of Consulting Management Engineers Inc., 347 Madison Ave., New York 17. 1955. 16 p. Free.

The role of management consultants is discussed, from a survey of typical work out of the $200 million annually earned by management consulting firms. Selection of proper consultants and securing of best results are discussed. A code of ethics is included.

Tufted textiles

Textile Ind. 119: 103-138D (June, 1955).

A study of the tufted textile industry. The article is based upon visits to different types and sizes of tufted plants, and upon interviews with tufted management, employees, machinery manufacturers, suppliers, and authorities close to the industry.

Textile machinery at the Brussels International Exhibition, June 25-July 10.

Man-Made Textiles 32: 79-137 (June, 1955); *Skinner's Silk and Rayon Record 29:* 615-625 (June, 1955).

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

YARN PRODUCTION B

Cutting artificial filaments into short lengths.

R. Lipscomb (to Imperial Chemical Industries Ltd). BP 720 233, December 15, 1954. Through *BCIRA 35:* 321 (1955).

Forming a spun yarn from fibrous elements in a liquid suspending medium.

P. M. Strang. USP 2 700 866, February 1, 1955.

Apparatus for making coated rug fillers.

R. Paulus. USP 2 710 429, June 14, 1955.

Electrostatic method and apparatus for collecting fibrous material and forming it into a strand.

S. Oglesby, Jr. and A. L. Thomas, Jr. (to Southern Research Institute). USP 2 711 626, June 28, 1955.

OPENING, PICKING, FIBER PREPARATION B 1

Lap weighing scales.

W. Jones (to W. and T. Avery Ltd). BP 721 780, January 12, 1955. Through *BCIRA 35:* 359 (1955).

Fiber conveyer and cleaner.

R. C. Young and R. A. Rusca. USP 2 712 162, July 5, 1955.

CARDING AND COMBING B 2

Mounting for the undercasings of textile carding engines.

A. Marvin (to T.M.M. (Research) Ltd). BP 720 523, December 22, 1954. Through *BCIRA 35:* 326 (1955).

Construction of half-laps for textile combing machines.

G. A. Winterburn (to T.M.M. (Research) Ltd). BP 720 524, December 22, 1954. Through *BCIRA 35:* 326 (1955).

Apparatus for grinding card clothing.

J. A. Bolger. USP 2 710 500, June 14, 1955.

Precise adjustment means for carding members.

H. C. M. H. Duesberg (Belgium). USP 2 711 562, June 28, 1955.

Combing machine.

C. Schleifer (Italy). USP 2 712 163, July 5, 1955.

DRAWING AND ROVING B 3

Mechanism for stopping the passage of sliver or roving through feed rollers.

E. E. Feather (to Prince-Smith and Stells Ltd). BP 720 751, December 29, 1954. Through *BCIRA 35:* 326 (1955).

Coiler head mechanism.

E. B. Robinson (to Ideal Industries, Inc.). USP 2 700 797, February 1, 1955.

Clearer for drafting rolls.

R. J. de Lathuwer. USP 2 711 563, June 28, 1955.

SPINNING, WINDING, TWISTING B 4

Ring travelers enabling a larger diameter of package to be wound.

F. Walsh and J. Benyon (to T.M.M. (Research) Ltd). BP 720 231, December 15, 1954. Through *BCIRA 35:* 327 (1955).

Ring twisting frames.

E. H. Bennett (to S. Bourne and Co. Ltd). BP 720 241, December 15, 1954. Through *BCIRA 35:* 327 (1955).

Supporting devices for thread guides in ring spinning frames.

L. Vella (Italy). BP 720 605, December 22, 1954. Through *BCIRA 35:* 326 (1955).

Roll winding machines for yarn.

J. P. Mackie (to James Mackie and Sons Ltd). BP 721 785, January 12, 1955. Through *BCIRA 35:* 359 (1955).

Traversing yarn guides for twisting and winding machines.

E. R. Scragg (to Ernest Scragg and Sons Ltd). BP 722 283, January 19, 1955. Through *BCIRA 35:* 359 (1955).

Self-lubricating system spindle designed to carry heavy packages.

E. Finlow (to Ernest Scragg and Sons Ltd). BP 722 308, January 19, 1955. Through *BCIRA 35:* 359 (1955).

Bearings for double-twist spindles.

K. Landolt (to C. Landolt and Co.). BP 722 404, January 26, 1955. Through *BCIRA 35:* 359 (1955).

Spinning machine for producing yarn directly from a large and bulky sliver.

F. E. Nutter and E. I. Spence (to Goodall-Sanford, Inc.). USP 2 710 428, June 14, 1955.

Machine for winding packages of yarn.

P. L. Hobourn (England). USP 2 711 859, June 28, 1955.

Yarn-twisting apparatus.

L. E. Peterson, S. L. Dart and J. A. Richards, Jr. (to American Viscose Corp.). USP 2 712 214, July 5, 1955.

YARNS B 5

Tensioning means for making heavy-ply tire or belting yarn.

A. D. Gatling (to Dunlop Rubber Co. Ltd). BP 720 407, December 22, 1954. Through *BCIRA 35:* 327 (1955).

Method for producing high-twist superpolyamidic yarns.

P. Charlois (France). BP 721 278, January 5, 1955. Through *BCIRA 35:* 327 (1955).

Coating of threads with metals.

P. Godley and F. C. Benner (to National Research Corp.). BP 721 879, January 12, 1955. Through *BCIRA 35:* 360 (1955).

Method of producing stretch-sheer yarn for hosiery.

W. J. Leath and F. E. Bobo, Jr. (to Chadolon, Inc.). USP 2 711 627, June 28, 1955.

Manufacture of strings of thermo-plastic filaments.

J. T. Crandall. USP 2 712 263, July 5, 1955.

FABRIC PRODUCTION C

Web tensioning apparatus for removing ravellings from textile webs.

F. R. Piper and J. M. Gardner (to West Point Manufacturing Co.). USP 2 710 438, June 14, 1955.

Bobbin stripper.

E. K. Bauer (to American Viscose Corp.). USP 2 710 440, June 14, 1955.

Method of manufacturing wool felt.

M. T. Hoffman. USP 2 712 171, July 5, 1955.

Robe fringing machine.

K. W. Macdonald (to Troy Blanket Mills). USP 2 712 213, July 5, 1955.

WARPING, SLASHING, YARN PREPARATION C 1

Winding machines having automatic knot-tying and supply-bobbin changing mechanism.

W. Reiners (Germany). BP 720 202, December 15, 1954. Through *BCIRA 35:* 330 (1955).

Warping machine with simplified controls and means for adjustment to different widths of warp.

A. W. H. Porter and A. Robertson (to F.N.F. Ltd). BP 720 310, December 15, 1954. Through *BCIRA 35:* 331 (1955).

Device for attachment to winding units of automatic weft winding machines for cutting off thread ends trapped between the drive head of the winding unit and the butt of the pirn.

Maschinenfabrik Schweiter AG (Switzerland). BP 720 447, December 22, 1954. Through *BCIRA 35:* 331 (1955).

Mechanism for storing winding-off bobbins and delivering the bobbins to their winding-off position as required.

W. Reiners (Germany). BP 720 678, December 22, 1954. Through *BCIRA 35:* 330 (1955).

Thread clearing device.

W. Reiners (Germany). BP 720 757, December 29, 1954. Through *BCIRA 35:* 330 (1955).

Tubular cop winding frames.

W. Dietz (Germany). BP 720 934, December 29, 1954. Through *BCIRA 35:* 331 (1955).

Apparatus for removing an end of a thread from a spool of the type used in automatic winding machines.

W. Reiners (Germany). BP 721 359-360, January 5, 1955. Through *BCIRA 35:* 330 (1955).

Method and apparatus for finding the ends of threads on winding bobbins.

W. Reiners (Germany). BP 721 708, January 12, 1955. Through *BCIRA 35:* 361 (1955).

Traverse rollers for winding machines.

F. Holt and G. Lee (to Thomas Holt Ltd). BP 721 893, January 12, 1955. Through *BCIRA 35:* 361 (1955).

Winding yarn (particularly elastic or soft yarns or yarns from a poor pack) at any desired tension.

C. A. Freeland (to J. Rawson and Sons Ltd). BP 722 348, January 26, 1955. Through *BCIRA 35:* 361 (1955).

WEAVING C 2

Circular looms.

R. N. Low and J. Catry (to Fairwest (U.K.) Ltd). BP 711 759, June 28, 1955.

Automatic cop changing devices for looms having a drum-shaped cop magazine.

G. Fischer AG (Switzerland). BP 719 649, December 8, 1954. Through *BCIRA 35:* 332 (1955).

Shuttle propelling mechanism for circular weaving looms.

Y. Latieule (to Comptoir Linier). BP 720 027-028, December 15, 1954. Through *BCIRA 35:* 331 (1955).

Loom temple of the coverless or trough and rollers type.

R. Dewas (France). BP 720 208, December 15, 1955. Through *BCIRA 35:* 332 (1955).

Take-up motions for looms.

C. H. Baddeley. BP 721 075, December 29, 1954. Through *BCIRA 35:* 332 (1955).

Control mechanism for the shuttle swells of automatic looms.

Coeurtys Soc. anon. (Switzerland). BP 721 192, January 5, 1955. Through *BCIRA 35:* 331 (1955).

Warp stop motions for looms.

W. Wrigley. BP 721 228, January 5, 1955. Through *BCIRA 35:* 332 (1955).

Shuttle box swells for weaving looms.

R. Boole (to H. G. Miles Ltd. and Richard Haworth and Company (Manufacturing) Ltd). BP 721 546, January 5, 1955. Through *BCIRA 35:* 331 (1955).

Automatic stopping arrangements for circular looms.

Qualitex-Societe Dunod and Cie (France). BP 722 257, January 19, 1955. Through *BCIRA 35:* 362 (1955).

Picking motions for mechanical looms.

Telares a Discos Egara Soc. Anon. (Spain). BP 722 337, January 26, 1955. Through *BCIRA 35:* 361 (1955).

Hand-threaded shuttle.

F. Wilkinson and L. A. Sutcliffe. BP 722 412, January 26, 1955. Through *BCIRA 35:* 362 (1955).

Pile wire blades for pile fabric looms.

W. G. Spurr (to James Neill and Co. (Sheffield) Ltd). BP 722 641, January 26, 1955. Through *BCIRA 35:* 362 (1955).

Selvage thread feeding means for looms.

M. R. Flamand (to Draper Corp.). USP 2 710 631, June 14, 1955.

Double knot netting loom.

R. Johnson (to Drummondville Cotton Co. Ltd). USP 2 711 116, June 21, 1955.

Driving mechanism for moving a steel wire used in the rod looms.

C. Dewaele (Belgium). USP 2 711 192, June 21, 1955.

Stafford type thread cutter and clamp for looms.

P. C. Consoletti (to Draper Corp.). USP 2 711 193, June 21, 1955.

Double lift open-shed dobby for looms.

F. Davies and J. K. Pitts (to The British Cotton Ind. Research Assoc.). USP 2 712 327, July 5, 1955.

Loom having independent lay and weft inserting mechanisms.

J. S. Chaya (to American Viscose Corp.). USP 2 712 328, July 5, 1955.

KNITTING C 3

Pile fabric circular knitting machines.
R. E. Brandt (to The George W. Borg Corp.). USP 2 710 525, June 14, 1955.

Full fashioned stocking knitting machine.
W. C. Witmer (to Walter M. Golaszewski). USP 2 710 526, June 14, 1955.

Circular knitting machine for making knitted loop fabric.
J. Radin (to Supreme Knitting Machine Co. Inc.). USP 2 710 527, June 14, 1955.

Verge plate for full-fashioned knitting machines.
A. J. Cobert (to Beautiful Bryans, Inc.). USP 2 710 528, June 14, 1955.

Thread-exchanging device for hand-operated knitting machines.
E. Piltz (to Willy Werner Lenkeit). USP 2 710 529, June 14, 1955.

Fabric winding down or drawing-off mechanism for circular knitting machines.
H. S. Burdett (England). USP 2 710 530, June 14, 1955.

Sheer stocking of crepe appearance.
J. J. McDonough (to Scott and Williams, Inc.). USP 2 710 531, June 14, 1955.

Plate and wrap yarn control means for circular knitting machine.
G. R. Marlette (to Adams-Millis Corp.). USP 2 711 090, June 21, 1955.

Purl stitch flat knitting machine.
E. E. Hafner (to Dubied Machinery Co.). USP 2 711 091, June 21, 1955.

Method of and machine for warp knitting.
P. N. Peters. USP 2 711 092, June 21, 1955.

Photoelectric stop motion for a two bar warp knitting machine.
A. Edelman, R. H. Roughsedge and H. G. Lustig (to Celanese Corp.). USP 2 711 093-094, June 21, 1955.

Warp knit fabric with settable coating for making orthopedic casts.
L. Brickman, C. Harmon and R. G. Litchfield (to Johnson and Johnson). USP 2 711 168, June 21, 1955.

Methods of and apparatus for making double faced fleece knitted fabrics.
D. P. Moore. USP 2 712 225, July 5, 1955.

Sinker heads for straight knitting machines.
J. J. Walley. USP 2 712 226, July 5, 1955.

Plated heel inlay for full-fashioned hosiery.
M. R. Haensel. USP 2 712 227, July 5, 1955.

FABRICS C 4

Method and device for producing a velvet-type fabric.
Velcro S. A. (Switzerland). BP 721 338, January 5, 1955. Through *BCIRA 35:* 332 (1955).

Slipper fabric from layers of woven fabric or felt bonded together by spongy rubber or the like.
L. E. Bastin (France). BP 721 694, January 12, 1955. Through *BCIRA 35:* 370 (1955).

Machine for making cross-laid unwoven fabrics.
M. A. Goldman (to Chicopee Manufacturing Corp.). USP 2 710 992, June 21, 1955.

Manufacture of tufted fabrics.
E. T. C. Brinton (to Brintons Ltd). USP 2 711 777, June 28, 1955.

FINISHING AND CHEMICAL PROCESSING D

Treatment of fabric by the process of steam blasting to reduce the gauge and lower the porosity.
J. K. Phillips (to The Goodyear Tire and Rubber Co.). USP 2 712 170, July 5, 1955.

CHEMICAL PROCESSES D 1

Artificial fog chambers for the continuous shrinking of fabrics, particularly wool.
L. Squarenina. BP 720 146, December 15, 1954. Through *BCIRA 35:* 343 (1955).

Photographic method to produce patterns on textiles.
M. Levinger (Germany). BP 720 248, December 15, 1954. Through *BCIRA 35:* 342 (1955).

Crease-resistant and waterproof finishes on cellulose fabrics.
Badische Anilin- and Soda-Fabrik (Germany). BP 720 387, December 15, 1954. Through *BCIRA 35:* 342 (1955).

Method and apparatus for the threading-in of artificial threads or yarns.

Algemene Kunstzijde Unie N.V. BP 720 648, December 22, 1954. Through *BCIRA 35:* 320 (1955).

Vertical trough for the liquid treatment of yarns.

Kunstzijdespinnerij Nyma N. V. (Netherlands). BP 720 975, December 29, 1954. Through *BCIRA 35:* 320 (1955).

Darkening the hollows of embossed patterns on vinyl resin coated fabric (leathercloth) to give the antique effect of hide upholstery.

T. R. Evans and W. H. Hogg (to Dunlop Rubber Co. Ltd). BP 721 303, January 5, 1955. Through *BCIRA 35:* 343 (1955).

Electrical wet heat treatment of fabrics having poor electrical conductivity.

E. B. Bates. BP 721 352, January 5, 1955. Through *BCIRA 35:* 343 (1955).

Process for improving the dimensional stability and strength of fabrics and yarns made from regenerated cellulose.

Algemene Kunstzijde Unie N.V. BP 721 380, January 5, 1955. Through *BCIRA 35:* 342 (1955).

Polyvinyl chloride coated laminated fabric conveyor belting.

L. Landau and F. T. Berry (to Barrow Hepburn and Gale Ltd). BP 721 485, January 5, 1955. Through *BCIRA 35:* 343 (1955).

Package supports for the wet treatment of yarn or like packages.

W. and T. Geidner. BP 721 922, January 12, 1955. Through *BCIRA 35:* 368 (1955).

Reel for propelling fabric in rope form through a dye beck.

F. B. Morrill. BP 722 381, January 26, 1955. Through *BCIRA 35:* 369 (1955).

Process for setting and stabilizing the dimensions of tubular knitted fabrics made of cellulose acetate.

T. Geeson (to Adshead and Geeson Ltd). BP 722 461, January 26, 1955. Through *BCIRA 35:* 370 (1955).

Production of moisture-proof coatings, impregnations, prints, etc., and composition therefor

Badische Anilin- & Soda-Fabrik (Germany). BP 719 683, December 8, 1954. Through *BCIRA 35:* 268 (1955).

Water-repellancy process for textiles

A. Doser (to Farbenfabriken Bayer AG). USP 2 708 642, May 17, 1955.

Fluid treating apparatus for strands

E. C. Gibson and H. M. Hoxie (to Chemstrand Corp.). USP 2 708 843, May 24, 1955.

Resin treating a textile material containing regenerated cellulose to render it dimensionally stable to repeated laundering

D. Burks, Jr. (to Kendall Co.). USP 2 709 141, May 24, 1955.

Apparatus for treating fabrics

F. B. Morrill and J. E. Woodworth (to James Hunter Machine Co.). USP 2 709 270, May 31, 1955.

Apparatus for treating fabric with layers of rubber

E. A. Steckel and B. Pasqua (to Gates Rubber Co.). USP 2 709 475, May 31, 1955.

Process for imparting wool-like finish to cellulose-acid-nitrogen complex fabrics

R. S. Babiarz and W. P. Hall (to Joseph Bancroft & Sons Co.). USP 2 709 638, May 31, 1955.

Germicidal composition and method of treating fabrics

J. L. Campbell, A. H. Osmond and G. C. Hutchinson. USP 2 709 665, May 31, 1955.

Method of treating woolen textile materials with di-pentachlorphenyl-monohydrogen phosphate for protection against biological attack

E. B. Higgins and A. E. Read (England). USP 2 710 269, June 7, 1955.

Method of bulking glass fiber strands

J. H. Waggoner (to Owens-Corning Fiberglas Corp.). USP 2 710 275, June 7, 1955.

Process for improving the retention in fibrous material of water-sensitive hydrophilic non-fibrous polymeric organic fillers.

J. G. Evans, J. H. Leach and W. S. Meals (England). USP 2 710 816, June 14, 1955.

Glass fiber filament strand and method of manufacturing glass fabric by sizing.

L. P. Biefeld (to Owens-Corning Fiberglas Corp.). USP 2 712 509, July 5, 1955.

DYEING AND PRINTING D 2

Mechanical screen printing machine

R. R. Laupman (Netherlands). BP 718 459 November 17, 1954. Through *BCIRA 35:* 267 (1955).

Process for producing insoluble brown azo dyestuffs on the fiber

Farbwerke Hoechst AG (Germany). BP 718 560, November 17, 1954. Through *BCIRA 35:* 268 (1955).

Dyeing of co-polymers of acrylonitrile and vinylpyridine

W. G. Cameron and H. B. Mann (to Courtaulds Ltd). BP 718 734, November 17, 1954. Through *BCIRA 35:* 264 (1955).

Discharge printing with a non-alkaline thiourea dioxide paste improved by inclusion of a zinc salt

P. Krug (to Hardman & Holden Ltd). BP 719 089, November 24, 1954. Through *BCIRA 35:* 267 (1955).

Acetyl cellulose and linear polyamide and polyurethane fibers dyeings fast to cross-dyeing

Farbwerke Hoechst AG (Germany). BP 719 287, December 1, 1954. Through *BCIRA 35:* 264 (1955).

Silk screen frame

R. A. Knowles. BP 719 395, December 1, 1954. Through *BCIRA 35:* 267 (1955).

Cellulose acetate rayon dyeings fast to cross-dyeing

Farbwerke Hoechst AG (Germany). BP 719 475, December 1, 1954. Through *BCIRA 35:* 263 (1955).

Machine for simultaneously printing fabric on both sides and in several colors

M. Stead. BP 719 897, December 8, 1954. Through *BCIRA 35:* 267 (1955).

Process for producing an acetyl cellulose and linear polyamide and polyurethane fibers dyeings fast to cross-dyeing.

Farbwerke Hoechst AG (Germany). BP 720 520, December 22, 1954. Through *BCIRA 35:* 340 (1955).

Dyeing and impregnating machines for the wet treatment of textile materials in web form.

K. Scheller (Switzerland). BP 720 701, December 22, 1954. Through *BCIRA 35:* 340 (1955).

Improving the fastness of substantive dyeings.

Farbenfabriken Bayer AG (Germany). BP 721 238, January 5, 1955. Through *BCIRA 35:* 340 (1955).

Screen printing machine.

Reggiani Meccanotex S.p.A. (Italy). BP 721 797, January 12, 1955. Through *BCIRA 35:* 369 (1955).

Process for improving the wet fastness of dyeings or prints.

Ciba Ltd. (Switzerland). BP 722 321, January 26, 1955. Through *BCIRA 35:* 368 (1955).

MECHANICAL PROCESSES D 3

Tenter clip

H. L. Haven (to Edward Parkinson Mfg. Co.). USP 2 708 784, May 24, 1955.

DRYING D 4

Drying a running web of fabric with superheated steam

J. Dungler (France). BP 718 418, November 17, 1954. Through *BCIRA 35:* 270 (1955).

Means for creating cross pleats as a fabric is gripped on the clips of a stenter, so as to compensate for shrinkage

J. Dungler (France). BP 718 434, November 17, 1954. Through *BCIRA 35:* 270 (1955).

Moisture regulators for drying apparatus

Landis & Gyr AG (Switzerland). BP 718 585, November 17, 1954. Through *BCIRA 35:* 270 (1955).

Nozzle and roller arrangements for tensionless driers

J. Dungler (France). BP 718 841, November 24, 1954. Through *BCIRA 35:* 270 (1955).

Centrifugal removal of liquid from fabric that has been washed in a drum of the tumbler type

J. J. Haverstock (to Avco Manufacturing Corp.). BP 718 863, November 24, 1954. Through *BCIRA 35:* 270 (1955).

Plasticizing chamber for nylon stockings

L. Heldmaier. BP 719 795, December 8, 1954. Through *BCIRA 35:* 269 (1955).

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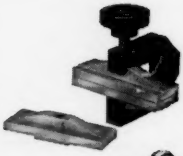

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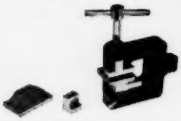

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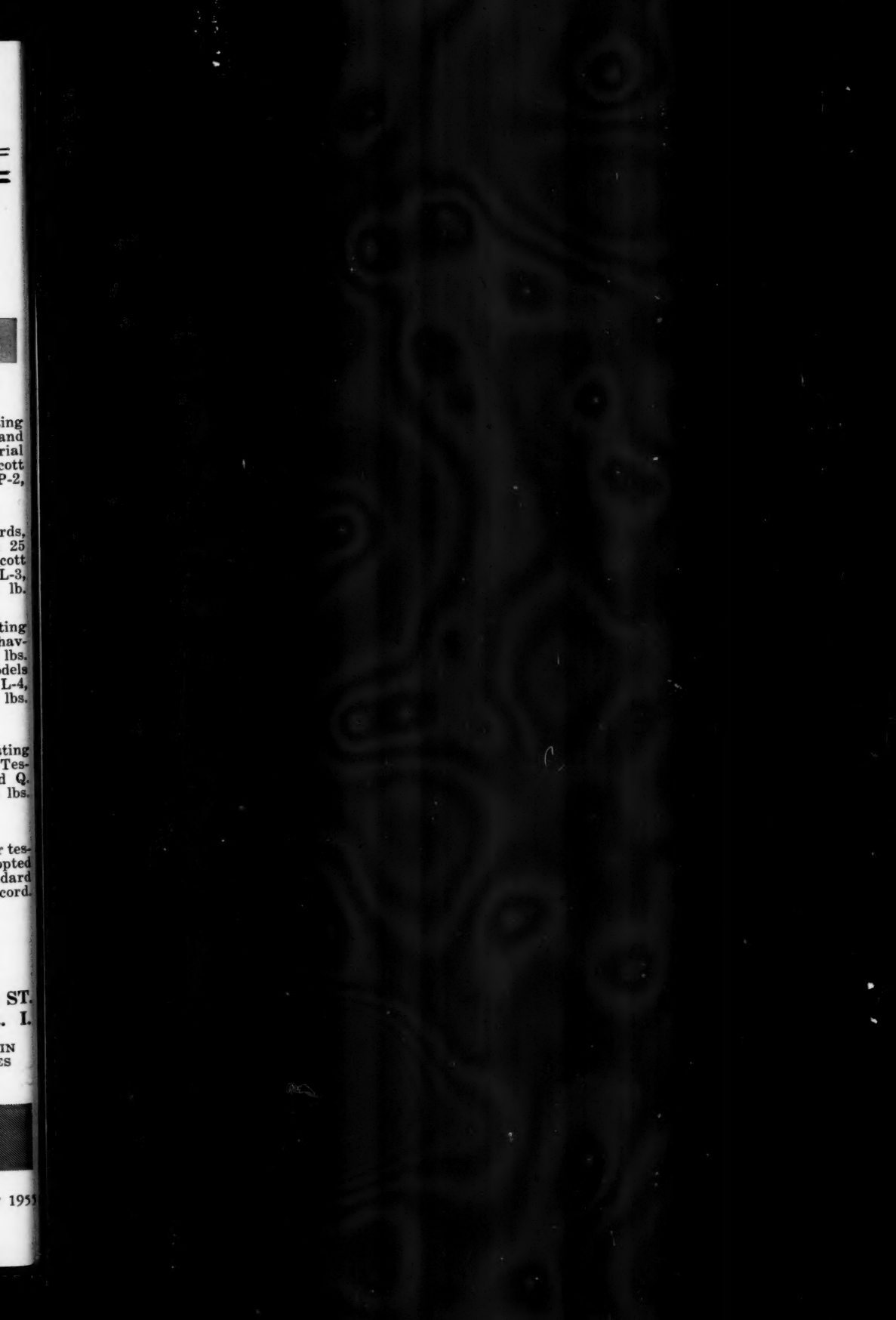
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